



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H.A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,666	03/17/2004	Mark Rodighiero	52202/JEJ/U56	2687
23363	7590	11/01/2006	EXAMINER	
CHRISTIE, PARKER & HALE, LLP			AKANBI, ISIAKA O	
PO BOX 7068			ART UNIT	
PASADENA, CA 91109-7068			PAPER NUMBER	
			2877	

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/802,666	Applicant(s) RODIGHERO ET AL.	
	Examiner Isiaka O. Akanbi	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>14 August 2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

The amendment file 14 August 2006 has been entered into this application. Claims 33-34 have been added.

Information Disclosure Statement

The information disclosure statement file 14 August 2006 has been entered and reference considered by the examiner.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 and 30 are rejected under 35 U.S.C. 101 the claimed invention is directed to non-statutory subject matter.

Claim 1 recites the limitation "applying a force in the determined direction to plastically deform said at least one of the optical components to re-align the optical components". Merely applying a force in the determined direction to plastically deform said at least one of the optical components to re-align the optical components would not appear to be sufficient to constitute a tangible result, since the outcome of the application step has not been used in a disclosed practical application nor made available in such a manner that's its usefulness in a disclosed practical application can be realized. See OG Notices: 22 November 2005, "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility".

Claim 30 recites the limitation "measuring an optical signal after said plastic deformation". Merely measuring an optical signal after said plastic deformation would not appear to be sufficient to constitute a tangible result, since the outcome of the measurement step has not been used in a disclosed practical application nor made available in such a manner that's its usefulness in a disclosed practical application can be realized.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (6,608,959 B2) in view of Miyokawa et al. (2002/0001324 A1)

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jang in view of Miyokawa. The reference of Jang teaches of a method of aligning optical components of photonic package of claim 1, comprising initially aligning the optical components, fixing the optical components with respect to one another through laser welding (col. 1, line 32-col. 2, line 1-10)(col. 6, line 36-39), determining a direction (i.e. x/y direction) to deform at least one of the optical components through performing a sweep of force vectors (col. 4, line 19-31), and suggested moving the ferrule in the elastic region to permanent deformation (fig. 5a)(col. 5, line 28-40)(col. 5, line 31-34). The reference of Jang discloses in another embodiment (col. 6, line 45-47)(col. 6, line 61-col. 7, line 1-4) applying a force determined direction to plastically deform said at least one of the optical components to re-align the optical components. Further it is known in the art to elastically or plastically deformed at least one of the optical components to re-align the optical components, as evident by Miyokawa (page 1, par. 0014)(page 2, par. 0016). It would have been obvious to one having ordinary skill in the art at the time of invention to determined direction to plastically deform said at least one of the optical components to re-align the optical components for the purpose of providing accurate shaped ferrule fixing of components.

As to claims 2-3 and 31, Jang and Miyokawa disclose everything claimed, as applied to claims above, in addition Jang discloses providing an actual position signal as a feedback and driving at least one motor to align the optical components using the actual position signal (fig. 5b)(col. 5, line 34-40). Jang discloses providing a force feedback signal and controlling an

Art Unit: 2877

applied force vector using the force feedback signal (230) by the process of (fig. 5b)(col. 5, line 34-col. 6, line 1-21).

As to claim 4, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses performing a linear sweep force vectors to confirm the determined direction by gripper moving the ferrule +Y direction (fig. 5a)(col. 5, line 4-6).

As to claims 5-7, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses performing the sweep of force vectors comprising elastically deforming of at least one of the optical components using the force vectors, measuring (P3/P2)(224) an optical Signal output associated with each force vector and selecting the direction of a largest optical signal output measured during the sweep (fig. 5b)(col. 5, line 28-40)(col. 6, line 12-21).

As to claims 8 -10, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses grabbing one of the components, and moving the grabbed one of the components in the determined direction (fig. 8)(fig. 9)(col. 6, line 8-11)(col. 6, line 62-65), gradually increasing the force in the determined direction until a desired force level has been reached and decreasing force to a zero force level (fig. 8)(fig. 9)(col. 6, line 8-21)(col. 6, line 36-47).

As to claim 11, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses measuring an optical signal output after the force has been decreased to the zero force level (col. 4, line 61-col. 5, line 1-14).

As to claim 12, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses holding the force constant at the desired force level for a predetermined period of time prior to gradually decreasing the force (col. 4, line 63-65).

As to claims 13 and 15, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses wherein duration of the constant force is increased if the optical signal output does not have a predetermined strength (fig. 7)(col. 5, line 40-65).

As to claims 14 and 16, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses applying the force to plastically deform said at least one of the optical components after increasing the duration of the constant force and after increasing the desired force level in another embodiment, (fig. 11)(col. 6, line 66-col. 7, line 1-4).

As to claim 17, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses if too much force has been applied, determining the direction

Art Unit: 2877

to deform said at least one of the optical components through performing the sweep of force vectors and applying the force plastically deform said at least one of the optical components (col. 7, line 10-20).

As to claim 18, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses if the direction cannot be determined, increasing a magnitude of the force vectors and performing the sweep of force vectors (col. 5, line 28-40).

As to claim 19, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses performing the sweep of force vectors comprising performing the sweep of force vectors on an X-Y plane (fig. 2)(col. 4, line 63-col. 5, line 1-13).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jang in view of Miyokawa. The reference of Jang teaches of a method of aligning optical components of photonic package of claim 1, comprising aligning optical components (col. 4, line 37-38), b) fixing the optical components with respect to one another through laser welding (col. 4, line 19-21, line 32-33), c) determining a direction to deform one of said optical components through performing a sweep of force vectors (col. 4, line 24-28)(col. 4, line 63-66), d) applying a force to deform said one of the optical components to re-align the optical components, e) measuring an optical signal after said plastic deformation (P3/P2)(224)(figs. 5 and 7), f) performing c) through e) if too much force has been applied and g) increasing force level and performing d) through e) if too little force has been applied (fig. 4)(fig. 5a-b)(col. 4, line 19-col. 6, line 1-47). The reference of Jang discloses in another embodiment (col. 6, line 45-47)(col. 6, line 61-col. 7, line 1-4) applying a force determined direction to plastically deform said at least one of the optical components to re-align the optical components. Further it is known in the art to elastically or plastically deformed at least one of the optical components to re-align the optical components, as evident by Miyokawa (page 1, par. 0014)(page 2, par. 0016). It would have been obvious to one having ordinary skill in the art at the time of invention to determined direction to plastically deform said at least one of the optical components to re-align the optical components for the purpose of providing accurate shaped ferrule fixing of components.

As to claim 32, Jang and Miyokawa disclose everything claimed, as applied to claim above, in addition Jang discloses performing the sweep of force vectors in step c) comprises performing the sweep of force vectors on at least an X-Y plane (fig. 4)(fig. 5a-b)(col. 4, line 19-67).

Art Unit: 2877

As to claims 33-34, Jang and Miyokawa disclose everything claimed, as applied to claim 20, the reference of Jang teaches of gripper (106) use for adjustment (col. 6, line 36-39 and line 61-65). The combination of Jang and Miyokawa is silent regarding a pneumatic gripper stop adapted to prevent complete closure of the gripper and adjustment screws that is adapted to be altered to adjust a looseness of the gripper. It would have been obvious to one having ordinary skill in the art at the time of invention to use a pneumatic gripper stop adapted to prevent complete closure of the gripper and adjustment screws that is adapted to be altered to adjust a looseness of the gripper for the purpose of providing accurate alignment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 20-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Jang et al. (6,608,959 B2).

As to claim 20, Jang discloses a system for performing a force bend alignment to re-align optical components of a photonic package after permanent fixation, comprising a stage (102) capable of providing movements and exerting force in at least one direction and a gripper (106) suitable for grabbing an optical component of the photonic package, wherein the gripper performs a sweep of force vectors on at least one of the optical components of the photonic package in an automated manner to determine direction to deform a supporting member coupled to said at least one of the optical components to re-align the optical components (col. 1, line 54-65)(col. 4, line 19-31)(col. 6, line 36-45).

As to claim 21, Jang discloses a control feedback loop for providing a force feedback signal and for adjusting the applied force vector using the force feedback signal (230) by the process of (fig. 5b)(col. 5, line 34-col. 6, line 1-21).

As to claims 22-23, Jang discloses force feedback signal that is used to zero out forces exerted by the gripper upon grabbing the optical component to perform the sweep of force vectors (fig. 5b)(col. 6, line 35-47) and control feedback loop provides an actual position signal, which is used to control initial alignment of the optical components (figs. 5a-b)(col. 4, line 51-67).

As to claim 24, Jang discloses wherein said at least one of the optical components is plastically deformed so as to realize the re-alignment (col. 6, line 67-col. 7, line 1-4).

As to claim 25, Jang discloses a ferrule (48), and the supporting member comprising a clip (52) attached to the ferrule, and wherein the clip is plastically deformed by grabbing the ferrule with a gripper (106) and exerting force on it through moving at least one of the stage and the gripper (figs. 2, 4, 6, 8, 9 and 11)(col. 4, line 44-50)(col. 6, line 67-col. 7, line 1-4).

As to claims 26 and 27, Jang discloses a laser (30) or photodetector (110), wherein the re-alignment is between the ferrule (48) and said laser or photodetector and wherein a direction to deform the clip is determined through measuring an optical signal after applying each force vector during the sweep (fig. 6)(fig. 8)(fig. 9)(fig. 11)(col. 4, line 61-col. 5, line 1-14)(col. 6, line 22- col. 7, line 1-4).

As to claim 28, Jang discloses a linear sweep force vectors to confirm the determined direction by gripper moving the ferrule +Y direction (fig. 5a)(col. 5, line 4-6).

As to claim 29, Jang discloses wherein the gripper (106) grabs the clip softly or loosely, whereby the gripper does not exert torsion forces (col. 4, line 27-28 and line 44-45)(fig. 6)(col. 7, line 2-4).

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art method of aligning optical components of a photonic package that may anticipate or obviate the claims of the applicant's invention.

Response to Arguments

Applicant's arguments/remarks, see pages 7-11, filed 14 August 2006, with respect to the rejection(s) of claim(s) 1-32 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made. Claims 1-19 and 30-34 are rejected under 35 U.S.C. 103(a) and claims 20-29 stand rejected under 35 U.S.C. 102(e). In response to Applicant's arguments with respect to cited references as neither described/suggest in claim 20, a gripper suitable for grabbing an optical component of the photonic package, wherein the gripper performs a sweep of force vectors on at least one of the optical components of the photonic package in an automated manner to determine a direction to deform a supporting member coupled to said at least one of the optical components to re-align the optical components, the examiner disagrees with the applicant arguments. The reference of Jang discloses a gripper (106) suitable for grabbing an optical component of the photonic package, the gripper performs a sweep of force vectors on at least one of the optical components of the photonic package in an automated manner (col. 4, 44-45 and line 51-60) to determine direction to deform a supporting member coupled to said at least one of the optical components to re-align the optical components (col. 1, line 54-65)(col. 4, line 19-31)(col. 6, line 36-45).

Examiner apologizes for the inconvenience, but upon further consideration, a new ground(s) of rejection under 35 U.S.C. 101 has been made to claims 1 and 30.

Conclusion

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi

October 27, 2006



HWA (ANDREW) LEE
PRIMARY EXAMINER